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CHINO AIRPORT SMART GROWTH DEMONSTRATION PROJECT

Chino Airport Smart Growth Plan

for the Southern California Association of Governments



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I. Executive Summary

1.1 Project Overview

The Chino Airport Smart Growth Demonstration Project is intended to serve as a model for a comprehensive approach to airport vicinity land use planning. Produced under the guidance of the Southern California Association of Governments (SCAG), the project involved coordination with SCAG's Aviation Technical Advisory Committee (ATAC), the Planning Advisory Committee (PAC) for the Chino Airport Master Plan, the San Bernardino County Department of Airports, and the Cities of Chino and Ontario.

The Chino Airport Smart Growth Plan incorporates planning concepts that introduce a sense of community by emphasizing more compact development, integrating interdependent land uses, constructing streets and buildings from a pedestrian perspective, and providing a variety of safe and affordable transportation options. The plan applies airport land use compatibility principles in tempering the application of Smart Growth concepts in airport environs. The plan also links other emerging airport and community planning and policy movements such as sustainability, airport capacity preservation, and non-aeronautical development of surplus airport property to improve airport balance sheets.

The concept of Airport Smart Growth planning emerges from the recognition that land within the airport environs has potential for various economic, environmental, and social activities and uses, and that the separation and isolation of uses, as envisioned in traditional airport land use compatibility planning, is not necessarily the most effective way to address this potential in a thoughtful and coordinated manner. Airport Smart Growth planning adds a degree of specificity, blending Smart Growth concepts with airport compatibility considerations in a way that is unique and specific to airports and their environs.

1.2 Airport Smart Growth Framework

As a Demonstration Project, this Airport Smart Growth Plan has been prepared with a view toward applicability in other airport settings. A key element of the plan, the Airport Smart Growth Framework, links Smart Growth and airport compatibility principles in a matrix that can be used in the evaluation of existing land use plans or the preparation of new land use plans, regardless of airport size, role, or community setting. The Airport Smart Growth Framework is intended to provide general guidance for all airports and planning agencies with jurisdiction in airport environs to develop in accordance with Smart Growth and sustainable planning principles, while concurrently addressing related airport compatibility requirements such as noise, safety, airspace protection, and flight safety. Major topics addressed in the Smart Growth Framework include the following:

- Economic Resiliency
- Sense of Place
- Compact Development Patterns and Land Uses
- Environmental Stewardship
- Mobility and Transportation
- Governance and Community Engagement

The Framework addresses these topics at three levels: in a general sense, for areas within an airport boundary, and within airport environs areas. Additionally, the Framework highlights key airport compatibility considerations that align with each of the aforementioned topic areas.

The Airport Smart Growth Framework can be applied to newly developing areas to examine the adequacy of future plans, and also can be applied to developed areas to assess compatibility issues and identify opportunities for future change or redevelopment.

1.3 Recommendations

The San Bernardino County portion of the Chino Airport environs served as a case study for applying the Airport Smart Growth Framework. The application of the Airport Smart Growth Framework to this area resulted in recommendations for modifications in the General Plans and applicable Specific Plans within the Cities of Chino and Ontario, and recommendations for the San Bernardino County Department of Airports to consider as it moves toward implementation of the Chino Airport Master Plan that is nearing completion.

Some of the major recommendations for Chino Airport and the environs include the following:

- Emphasize and promote the development of mixed-use activity centers at the Merrill/Euclid Avenue intersection and near the Euclid/Bickmore Avenue intersection.
- Use future development along Chino Airport's southern edge to form a buffer and enhance compatibility between the Airport and adjacent neighborhood.
- Improve north-south connectivity in the Airport environs and explore realignment of Bon View Avenue to connect with Cal Aero Drive to enhance opportunities for higher-intensity mixed-use development near the Airport entrance.
- Develop a coordinated vision and design theme to enhance the visual profile and identity of Chino Airport and surrounding environs.
- Update the San Bernardino County Airport Land Use Compatibility Plan for Chino Airport (ALUCP), and update the City of Chino and City of Ontario General Plans to reflect the updated ALUCP and Chino Airport Smart Growth Plan recommendations.
- Develop a coordinated economic development strategy for the Chino Airport area involving the Cities of Chino and Ontario and San Bernardino County.
- Establish a Chino Airport Vicinity Planning Coordination Committee and coordinate with other neighboring jurisdictions in the planning for the Chino Airport environs.

The Chino Airport Smart Growth Plan represents an initial effort to apply an Airport Smart Growth Planning Framework to the evaluation and refinement of land use and transportation plans in the environs of an airport. SCAG should consider refining its Compass Blueprint planning principles and the SCAG Growth Vision for the six-county region to incorporate the Airport Smart Growth Framework. SCAG should also work with the California Department of Transportation to incorporate the framework into the California Interregional Blueprint, a planning project aimed at linking statewide transportation goals with regional land use and transportation goals to produce a unified transportation strategy.

Recognizing that this is demonstration project, the SCAG staff and Aviation Technical Advisory Committee should publicize and explain the project to the operators of other airports and to the staff and elected officials of airport host communities within the SCAG region. If the Airport Smart Growth Planning Framework is found to be helpful in guiding appropriate development in the Chino Airport environs, other airports and communities within the SCAG region may wish to undertake their own planning efforts.

II. Introduction

This document presents the Chino Airport Smart Growth Plan.

The project incorporates the concept of Smart Growth into airport area planning using concepts that introduce a sense of community by emphasizing more compact development, integrating interdependent land uses, constructing streets and buildings from a pedestrian perspective, and providing a variety of safe and affordable transportation options. The project applies airport land use compatibility principles in tempering the application of Smart Growth concepts in airport environs. The project also links other emerging airport and community planning and policy concepts such as sustainability, airport capacity preservation, and non-aeronautical development of surplus airport property to improve airport balance sheets.

Under the guidance of the Southern California Association of Governments (SCAG), a regional planning agency with an established mandate to undertake regional transportation planning and other regional planning efforts, the project involved coordination with SCAG's Aviation Technical Advisory Committee (ATAC), the Planning Advisory Committee (PAC) for the Chino Airport Master Plan, the San Bernardino County Department of Airports, and the Cities of Chino and Ontario.

2.1 Purpose of Study

SCAG intends the Chino Airport Smart Growth Demonstration Project to serve as a model for a comprehensive approach to airport vicinity land use planning. The project involved the development of a framework for preparing an airport vicinity land use plan to take advantage of the economic development opportunities offered by an existing airport while incorporating Smart Growth and airport compatibility principles. Consistent with the vision defined in the ongoing Airport Master Plan, the Smart Growth Plan is intended to capitalize on the Airport as a business center, considering long-range development within the study area.

SCAG's purpose in undertaking this Airport Smart Growth Demonstration Project is clearly described in its Request for Proposals for consulting assistance.

Over the last decade SCAG has accumulated a considerable body of experience in conducting land use scenario planning (i.e., developing and testing alternative land use scenarios) within strategic "growth opportunity" areas, through its Compass Blueprint program. These areas include "key economic infrastructure zones" such as airports. Land use scenarios have been developed and evaluated through a variety of demonstration projects conducted with local government partners throughout the SCAG Region. Innovative planning and evaluation tools have been employed in these demonstration projects, including market feasibility analysis, transportation modeling, development code and infill analysis, "green building" guidance, and visualization techniques including GIS mapping, photo-morphs and video "fly-throughs." Compliance with traditional "Smart Growth" principles typically have been evaluated in these projects, such as focusing growth along major transportation corridors and transit stations, creating areas of mixed-use development and pedestrian-oriented communities, and preserving existing open space and stable residential communities...

The purpose of the Chino Airport Smart Growth Project is to adapt Compass Blueprint planning approaches and analytical tools to an airport setting, with airport "Smart Growth" principles serving as the key benchmarks for developing and evaluating alternative land use scenarios in a defined airport service area.

The reasons for selecting Chino Airport for this project include the following:

- Chino Airport is a relatively large general aviation airport (1,100 acres) with three runways, and can accommodate corporate jet aircraft.
- The Airport currently has over 600 based aircraft, 100 businesses, and two aircraft museums.
- The Airport has recently surmounted the overall sharp downward trend in the aviation industry. For the first five months of 2009, the Chino Airport saw 86,000 aircraft operations, the highest total in four years and a rebound from declines that began in 2006.
- There are abundant development and re-development opportunities within a five mile radius of the Airport.
- The County of San Bernardino considers the Airport as being currently under-utilized and having the potential to become a future economic engine for the County, with increased use of the Airport's runways for corporate and commercial use, more aircraft hangars and facilities for corporate jets, and development of retail, business and light industrial uses in and around the Airport.
- The County has recently initiated an update to the 2006 Chino Airport Master Plan.
- Chino Airport management (County of San Bernardino Department of Airports) has expressed a willingness and readiness to participate in and assist in coordinating the Chino Airport Master Plan Update with this project.¹

III. Scope of Plan

The Airport Smart Growth Plan is focused on the San Bernardino County portion of the Chino Airport environs. It includes recommendations for modifications in the general plans and applicable specific plans within the cities of Chino and Ontario. It also includes recommendations for the San Bernardino County Department of Airports to consider as moves toward implementation of the Airport Master Plan that is nearing completion.

As a Demonstration Project, this Airport Smart Growth Plan has been prepared with a view toward applicability in other airport settings. The Airport Smart Growth Framework, discussed in the next section, links Smart Growth and airport compatibility principles in a matrix that can be used in the evaluation of existing land use plans or the preparation of new land use plans in the environs of airports, regardless of airport size, role, or community setting.

IV. Airport Smart Growth Framework

Planning in an airport setting has historically focused on segregation of land uses within airport boundaries and in the surrounding environs. This emphasis on separation and compatibility of uses often leads to either of two goals for airport vicinity land use: (1) establishment of an extensive undeveloped land buffer and reserve around an airport; or (2) designation of a large expanse of land for compatible commercial and industrial uses (often, regardless of whether the market can support those uses). This concept of land use segregation could theoretically function well for airport land use compatibility, as it greatly reduces the potential for conflict between the airport and surrounding land uses.

¹ Southern California Association of Governments (SCAG), Request for Proposal No. 10-055-C1, Chino Airport Smart Growth Demo Project, Release Date – March 4, 2010, pp. 7-8.

In practice, however, the isolation of airports within a large expanse of surrounding compatible land uses, whether low intensity agriculture and open space or intensely developed industrial-commercial uses, is rarely realistic or achievable. This model is especially ill-suited to the environs of many airports in urban and suburban environments where existing development patterns and the real estate market are exerting powerful countervailing forces. Real estate near urban and suburban airports is often quite valuable and subject to tremendous development pressure. As the airports and the surrounding communities grow, the land becomes increasingly valuable for airport-related services, housing, and other land uses and activities. The pressure for residential development can become especially strong because of the traditionally ready market for housing and the feasibility of developing viable residential projects on relatively small parcels. On the other hand, the prospect for major commercial or industrial projects, which often require large tracts of land, may become fully mature only after many years, longer than the investment horizon of small property owners. It can be tempting to forego the much larger job-creating potential offered by commercial and industrial development and opt for the near-term benefits afforded by immediate residential development. If land use plans in the environs of airports are to be effective, the plans must realistically address these forces, facilitating development that balances airport compatibility, economic opportunities, and community liveability.

The Airport Smart Growth Framework presented and discussed in this section is intended to help establish “best practice” guidelines for planning and development at airports and in airport environs areas, as an alternative to conventional development in an airport setting. The Airport Smart Growth Framework is based on the principles of Smart Growth planning, blended with airport compatibility and other sustainable planning considerations. This section begins with a discussion about the ideas and processes that helped shape the Framework, followed by detailed descriptions of the Airport Smart Growth Framework and principles, and guidance for how to apply the Framework to airports and their environs.

4.1 Smart Growth Principles

Smart growth is a planning and development concept that recognizes the relationship between development patterns and quality of life. It involves the use of mutually reinforcing techniques of urban development to reduce dependence on automobile transportation, improve neighborhood livability, promote equity in housing/employment opportunities, and improve environmental quality. Ten strategic principles, formulated by the Smart Growth Network, characterize Smart Growth²:

1. Create a range of housing opportunities and choices.
2. Create walkable neighborhoods.
3. Encourage community and stakeholder collaboration in the development process.
4. Foster distinctive, attractive communities with a strong sense of place.
5. Make development decisions predictable, fair, and cost effective.
6. Mix land uses.
7. Preserve open space, farmland, natural beauty, and critical environmental areas.
8. Provide a variety of transportation choices.

² Smart Growth Network, Cited in Lee, Richard W. Ph.D., et al. *Applying Smart Growth Principles and Strategies to Resolving Land Use Conflicts Around Airports*, MTI Report 06-05. San José, CA: Mineta Transportation Institute, College of Business, San José State University, September 2008, p. 29.

9. Strengthen and direct development toward existing communities.
10. Take advantage of compact building design.

Smart Growth is different from conventional development because it emphasizes the integration of different land uses (including a variety of residential, commercial, and public uses) into compact, multi-modal neighborhoods, whereas conventional development generally occurs in a more dispersed and segregated manner and is heavily automobile-oriented.

4.2 Airport Compatibility Principles

As key nodes in the regional and national transportation systems, airports are sizeable public investments that facilitate economic activity and development. At the same time, they consume large tracts of land and can result in potentially adverse impacts on neighboring properties.

Airport land use compatibility planning has two guiding objectives:

1. To ensure that future residents are protected from adverse impacts associated with airport use and operations; and
2. To enable the airport to achieve its intended purpose of serving air transportation needs through the future.

The California Department of Transportation (Caltrans) Division of Aeronautics has published an *Airport Land Use Planning Handbook* to guide airport land use commissions (ALUCs) in the preparation of airport land use compatibility plans (ALUCPs).³ The *Handbook* identifies the following airport compatibility factors that merit consideration:

1. Noise and Overflight
2. Safety of persons on the ground
3. Airspace protection and flight safety

Table 1 summarizes the general land use compatibility guidance provided in the *Handbook*.

4.3 Airport Smart Growth Framework

The concept of Airport Smart Growth planning emerges from the recognition that land within the airport environs has potential for various economic, environmental, and social activities and uses, and that the separation and isolation of uses, as envisioned in traditional airport land use compatibility planning, is not necessarily the most effective way to address this potential in a thoughtful and coordinated manner. Airport Smart Growth planning is fundamentally based on the concepts of Smart Growth planning, yet it adds a degree of specificity, blending the Smart Growth concepts with airport compatibility considerations, that is unique and specific to airports and their environs.

³ California Department of Transportation, Division of Aeronautics, *California Airport Land Use Planning Handbook*, 2002. An updated version of the *Handbook* is in development and is anticipated to be published in the second half of 2011.

Table 1**Airport Compatibility Factors**

Compatibility Factor	Land Use Guidance
Noise and Overflight	<ul style="list-style-type: none"> Define noise impact areas using CNEL contours⁴ based on long-term airport activity forecasts Establish CNEL compatibility thresholds based on <i>Handbook</i> guidance and local community values Avoid residential uses within critical CNEL contour (CNEL 55, 60, or 65 dB) Avoid noise-sensitive uses (e.g., schools, places of performance/worship, etc.) in critical CNEL contour If possible, avoid the development of low density residential areas (with low ambient noise levels) beneath airport traffic pattern Promote real estate disclosure of potential for noise and overflights in airport environs
Safety	<ul style="list-style-type: none"> Define airport area safety zones based on Caltrans <i>Handbook</i> guidance (which was developed from studies of aircraft accident location patterns) Avoid residential uses off runway ends in highest risk safety zones Avoid land uses with large concentrations of people off runway ends in highest risk safety zones Avoid uses serving populations with limited mobility (children's schools, hospitals, nursing homes) in highest risk safety zones Avoid hazardous land uses and critical public utilities in highest risk safety zones Promote preservation of open space along extended runway centerlines Promote clustering of buildings away from extended runway centerlines
Airspace and Flight Safety	<ul style="list-style-type: none"> Limit structure heights to ensure protection of approach and departure airspace in airport vicinity Avoid development features that may interfere with communications, navigational aids, pilot visibility Avoid sources of thermal plumes in areas of low altitude flight Avoid wildlife attractants in airport vicinity

Source: Adapted from California Department of Transportation, Division of Aeronautics, *California Airport Land Use Planning Handbook*, 2002, Chapters 7 and 9.

Prepared by: Ricondo & Associates, Inc., June 2011.

⁴ CNEL (Community Noise Equivalent Level) is a time-weighted cumulative noise metric that California law requires to be used in the assessment of airport noise exposure. CNEL is calculated by summing the total aircraft noise exposure occurring during an average day in the year of study. Noise occurring at night (10:00 p.m. to 7:00 a.m.) is assigned an extra 10-decibel weight in the calculation; evening noise (7:00 p.m. to 10:00 p.m.) is assigned a 5-decibel weight. The weights are intended to account for the greater annoyance caused by noise during those hours. CNEL values are typically mapped as contours of equal noise exposure, similar to elevation contours on a topographic map.

The Airport Smart Growth Framework, summarized in **Table 2**, is intended to provide general guidance for all airports and planning agencies with jurisdiction in airport environs to develop in accordance with traditional Smart Growth and sustainable planning principles, while concurrently addressing related airport compatibility requirements such as noise, safety, airspace protection, and flight safety.

In addition to the summary version of the Framework, this section also includes detailed descriptions and examples of the principles and discussions about how they can be applied. Note that the summary table provides an overview of airport compatibility requirements, but more specific guidance regarding noise, safety, airspace protection, and flight safety considerations must be reviewed and factored into the decision-making process. The full range of airport compatibility considerations currently applying in the Chino Airport environs are detailed in Section B.3 of **Appendix B**.

4.3.1 Airport Smart Growth Principles

Development of the Airport Smart Growth Planning Framework began with the review of the Smart Growth planning principles and their effect and relationship to airports and their environs. Because the Smart Growth principles generally focus on new development and growth, it became evident that other facets and principles of sustainable planning should also be considered in this review because of the developed nature of many existing airport areas and their environs.

Smart Growth and other sustainable planning principles were grouped in similar topic areas. Reorganization and consolidation of these principles resulted in six categories of principles for the Framework: economic resiliency, sense of place, development patterns and land uses, environmental stewardship, mobility and transportation, and governance and community engagement. The Smart Growth principles are located in the left column of Table 2. The principles are intended to be general in nature, and are relevant to all communities and areas, including airports. The Smart Growth principles also reflect and align with the Southern California Association of Governments (SCAG) Compass Blueprint's growth vision and planning principles.⁵ The Compass Blueprint's growth vision and principles aim to improve mobility for all residents, foster livability in all communities, enable prosperity for all people, and promote sustainability for future generations. The guidance in the Caltrans *Airport Land Use Planning Handbook* (referred to as the *Handbook*)⁶ as it applies to the various Smart Growth principles is also reflected in the Framework table.⁷

⁵ Compass Blueprint. "Principles," www.compassblueprint.org/about/principles (accessed March 29, 2011).

⁶ California Department of Transportation, Division of Aeronautics, *Airport Land Use Planning Handbook*, 2002. An updated version of the *Handbook* is in preparation and is anticipated to be published in the second half of 2011.

⁷ The *Handbook* also provides guidance for a fourth compatibility category, referred to as "overflight." The guidance applies to potentially very large areas where frequent or low altitude overflights can create concerns among some residents. These areas are so large, and subject to noise levels that are so low, that specific land use regulations are rarely justified. Rather, the *Handbook* advises that buyer awareness measures should be considered so as to advise potential property buyers about the potential for airport-related activity and related annoyances.

Table 2 (1 of 2)

Airport Smart Growth Framework

Smart Growth/Sustainable Planning Principle	Application within Airport Boundary	Application within Airport Environs	Compatibility Considerations		Airspace Protection and Flight Safety
			Noise	Safety	
Economic Resiliency					
Seek entrepreneurship, innovation, and economic stability. Support the development of a wide variety of jobs that provide competitive wages.	Support existing aviation activities; pursue opportunities to increase aviation-related services and employment. Explore opportunities for non-aviation related employment and services to support economic development and generate revenue at the airport. Since the airport operator has the role of developer, pursue projects with a promising return on investment.	Promote a variety of retail and services to meet the needs of area residents and workers. Encourage businesses that complement airport services and patrons.	Avoid outdoor retail/dining areas in high noise areas (generally CNEL 65 dB contour).	Avoid high-occupancy office, commercial, and industrial land uses off runway ends.	Limit structure heights in runway approach areas. Avoid uses with attributes posing hazards to flight (e.g., thermal plumes, glare, and/or electronic interference from alternative renewable energy sources).
Sense of Place					
Foster distinctive, attractive areas with a strong and authentic character. Craft a vision and set standards for development and construction which respond to community values of architectural beauty and distinctiveness.	Create a distinct image and identity for the entrance(s) and entire airport area. Enhance wayfinding and signage to/from and within the airport. Link identity of the airport to the surrounding environs and the larger region.	Enhance wayfinding and signage to the airport entrance(s). Establish distinct identities for area activity centers (including the airport).	Where possible, enhance noise-reducing architectural and landscaping features (e.g., earthen berms)	Ensure that activity centers, signage, and landscaping do not attract large concentrations of people near runway ends.	Limit the height of structures and signage in runway approach areas. Avoid landscaping that attracts wildlife hazardous to aircraft.
Compact Development Pattern and Land Uses					
Direct development to areas already served by infrastructure, seek to use resources that existing neighborhoods offer; and conserve open space and natural resources on the urban fringe. Take advantage of a compact development pattern and create walkable neighborhoods and areas. Integrate a mix of land uses and provide a variety of employment, retail, and service options near residential neighborhoods. Provide a range of high-quality housing options for people of all income levels.	Pursue infill and redevelopment within the airport areas. Establish physical connections (roads, sidewalks, trails, etc.) between the airport and surrounding community. Provide walkable connections to services (on and off airport). Integrate retail, services, and employment (aviation and other) to complement airport operations. Seek compatibility with and provide transitions to surrounding land uses.	Provide walkable connections from neighborhoods to activity centers, employers, and services (including airport activities). Seek compatibility with and provide transitions to airport uses. Reserve open space/ buffer zones off runway ends. Support a mix of uses including community facilities, retail, services, and places of employment. Integrate varied housing types for housing opportunities near the airport to promote a balance with jobs and services.	Avoid noise-sensitive uses within critical noise contour (CNEL 55, 60, or 65 dB, depending on character of community and ambient noise). Direct housing development toward existing communities located farther from the airport.	Maximize open space off runway ends, beneath approaches. Limit density and intensity of development off runway ends and beneath approaches. (At Chino, in Zones 1, 2, B1, and C.) Limit density and intensity of development off runway ends and beneath approaches. (At Chino, in Zones 1, 2, B1, and C.)	In preserving open space, avoid major wildlife and bird attractants beneath runway approaches and flight patterns. Limit structure heights in airspace protection areas. Prohibit land uses that create thermal plumes, glare, smoke, and lighting that could mislead pilots.

Table 2 (2 of 2)

Airport Smart Growth Framework

Smart Growth/Sustainable Planning Principle	Application within Airport Boundary	Application within Airport Environs	Compatibility Considerations		Airspace Protection and Flight Safety
			Noise	Safety	
Environmental Stewardship					
Provide stewardship, preservation, and management of environmental resources and areas. Conserve open space, farmland, and natural beauty.	Follow airport environmental best management practices that address: <ul style="list-style-type: none">Air qualityEnergy conservationSolid waste managementWater conservation and stormwater managementFarmland and open space conservationWildlife habitat	Protect and provide stewardship of environmental resources including: <ul style="list-style-type: none">Air qualityEnergy conservationSolid waste managementWater conservation and stormwater managementFarmland and open space conservationWildlife habitat	Avoid natural areas that attract large concentrations of visitors (e.g., botanic gardens) in high noise areas (CNEL 65 to 70 dB and higher contours).	Preserve open space and/or agricultural uses off runway ends to accommodate forced landings.	Avoid natural areas off runway ends and beneath approaches that attract wildlife hazardous to aircraft. If located near runway ends, select tree species limited in height.
Mobility and Transportation					
Provide a variety of transportation choices and connections to move people and goods. Improve mobility and safety for automobiles, trucks, transit, pedestrians, and bicyclists. Design the transportation network so that traffic flows at a constant speed and travel time is predictable.	Provide clear multi-modal routes (walkways, bicycle lanes, transit systems, and roads) throughout airport. Design the interior circulation system for segregation of aircraft and vehicle operations. Establish multi-modal local and regional connections (roads, transit systems, bikeways, sidewalks) from airport to surrounding areas.	Provide a multi-modal system (roads, transit systems, bikeways, sidewalks) throughout the area and maintain/build connections with airport. Establish direct routes tying into the regional transportation system. Create aesthetically attractive corridors radiating from the airport that are functional and project a positive image that orients travelers.	Not applicable.	Avoid transit stations and transit-oriented development off runway ends and in approach areas. (At Chino, Zones 1, 2, B1, and C.) Avoid new roads, railroads, and bikeways in RPZs. (At Chino, Zones 1 and A.)	When determining airspace clearances for proposed roads and railroads near runways, account for the height of vehicles, buses, railroad cars, and other mobile objects. Avoid uses causing electrical interference with airport navigational aids.
Governance and Community Engagement					
Encourage community and stakeholder collaboration in the development and planning process to determine how and where growth should occur. Provide predictable, fair, and cost-effective administration of the development process.	Seek predictability, transparency, and public feedback in airport-related decision making. Forge and maintain relationships between airport administration and local and county governments, particularly in relation to land use planning and review of development applications.	Involve and collaborate with citizens in airport compatibility planning and decision-making. Forge and maintain relationships between local and county governments and with airport administration. Coordinate with local municipal and county plans on land uses and other airport considerations.	Establish ongoing airport/planning agency coordination in review of planning and development proposals. Establish procedures to ensure that prospective property owners are informed of noise and overflight conditions in airport environs.	Establish ongoing airport/planning agency coordination in review of planning and development proposals.	Ensure local land use agencies are aware of CFR Part 77, Subpart B, construction notification procedures. Encourage local planning and permitting agencies to inform developers of those notification procedures.

Source: Ricondo & Associates, Inc. and Clarion Associates, LLC, June 2011.

Prepared by: Ricondo & Associates, Inc. and Clarion Associates, LLC, June 2011.

4.3.2 Application to Different Airport Influence Areas

Through the review of the Framework's principles and their relationship to airports, it became evident that the applicability and meaning of the principles will vary depending on the location. For this reason the principles were refined to address two distinct geographies: (1) areas within the airport boundary and (2) the surrounding airport environs.

The Framework's "Application within the Airport Boundary" column details how the principles relate to areas on airport property. Areas within the airport boundary generally fall under public jurisdiction and are more tightly controlled than areas outside the boundary. As such, they face different development opportunities and challenges than privately owned property off-airport. Nonetheless, areas within the airport boundary need to be coordinated with the airport environs and surrounding jurisdictions, and the principles provide specific guidance about how development and change within the airport boundary can be enhanced and coordinated with the surrounding areas.

The "Application within the Airport Environs" column of the Framework describes how the Smart Growth principles apply to areas surrounding the airport. Airport environs areas generally fall within the jurisdiction of local municipalities, and are often characterized by more fragmented ownership and less coordinated development patterns than areas within the airport boundary. The principles provide guidance about the desired objectives and characteristics of future growth and development in the airport environs.

4.3.3 Compatibility Considerations

The "Compatibility Considerations" section of the Framework complements the Smart Growth principles, providing guidance for compatibility issues to consider with each principle. They reflect best practices for ensuring that surrounding land uses are compatible with airport operational, noise, safety, and airspace protection/flight hazard considerations. The compatibility considerations are intended to "layer" upon the Smart Growth principles to supplement the guidance for the airport property and airport environs.

Three airport compatibility factors are summarized in the Framework: noise (including overflight considerations), safety (primarily the safety of persons on the ground), and airspace protection and flight safety. These factors are based on the guidance provided to airport land use commissions by the *Handbook*.⁸

4.3.4 Framework Content

The following sections elaborate on the Airport Smart Growth principles and associated considerations for airport environments. In each section, an example of an airport that embodies the defined Airport Smart Growth principle is provided.

⁸ California Department of Transportation, Division of Aeronautics, *Airport Land Use Planning Handbook*, 2002. An updated version of the *Handbook* is in preparation and is anticipated to be published in the second half of 2011.

Economic Resiliency

To adapt to and thrive in times of prosperity and times of economic retraction, emphasis should be placed on the development of a broad economic base that provides job opportunities that are suited for the local and regional workforce and provide wages that enable workers to live in or near the community where they work. Communities should encourage entrepreneurship and innovation to support job growth and promote a variety of land uses and revenue sources to diversify, stabilize, and strengthen the economy.

Airport Considerations: Within airport boundaries, economic activities should support existing airport operations and aviation activities. If demand for airport services is expected to grow, opportunities to increase aviation-related services and employment should be pursued. Where an airport has excess land, opportunities can be explored for non-aviation uses that supplement airport revenues and support regional economic development, such as employment, commercial, and service uses. (Note that FAA approval is required for non-aviation development within the airport boundary.) The airport operator also has the primary responsibility of operating an aeronautical facility, thus non-aviation projects should primarily be intended to support that effort. Pictured to the right, Scottsdale Airport and the surrounding Airpark provide an example of how compatible development can occur at and around an airport to enhance economic resiliency.

Beyond the airport boundaries in the airport environs, a varied mix of employment, commercial, and service activities can help meet the needs of area residents and workers so that they do not need to travel outside of the region to work, shop, or obtain services. In areas adjacent to or near the airport, land uses that complement aviation services and patrons should be encouraged.

To ensure continued viability of airport operations, airport compatibility factors must be considered in all decisions related to economic development. For example, outdoor retail and dining uses should be avoided in areas where high airport noise is expected in order to reduce potential noise conflicts. Likewise, high-intensity office, commercial, and industrial uses should be avoided near runway ends to minimize safety hazards. To ensure airspace and flight safety protection, heights of structures must be limited in runway approach areas, and activities that could pose hazards to flight, such as thermal plumes, glare, and electronic interference, should be avoided.

Case Study: Scottsdale Airport



Source: ScottsdaleAZ.gov

Scottsdale Airport (SDL) is a general aviation facility located in the center of the Scottsdale Airpark, a major commercial and industrial employment center in Scottsdale, Arizona. The Airpark provides gated access to SDL and has seven miles of taxiways. Hangars in the Airpark are used for aircraft storage and warehousing. While this airfield access spurred initial development in the Airpark, the area has since developed into a large corporate center with many businesses lacking direct airport access.

Today, over 3,000 businesses, including 30 national and regional corporations, employ over 50,000 people in the Airpark, making it the second largest employment center in Arizona. A 2006 study found that the combined impact of SDL and the Airpark is \$2.5-3.0 billion per year.¹

Source: Ricondo & Associates, June 2011.

¹ Scottsdale Area Chamber of Commerce. "About the Scottsdale Airport," www.scottsdalechamber.com/eoffice/taf/_sacc2.taf?_menu=page&mnid=saccpage&smid=1200931038&vurl=scottsdalechamber (accessed April 7, 2011).

Sense of Place

A coordinated vision for the future character of development can help to establish a strong sense of place. Design and site planning standards can strengthen and establish distinctive areas that are cohesive, attractive, interesting, and reflect local values and culture.

Airport Considerations: Airports are unique community areas. For visitors, airports are places where first impressions can be formed about the entire community or region. For residents, airports can be seen in various ways - ranging from valuable economic assets to overlooked or even nuisance areas. Because of the many possible perceptions associated with an airport it is important to establish a strong sense of character and unique sense of place for airports and their environs so that they leave a positive impression on users and neighbors. The example to the right describes the unique approach used by Palm Springs International Airport to enable passengers to experience the region's warm, desert climate and to enrich the vacation experience for many golf-inspired visitors.

Within the airport boundary, creating a distinct image and identity can begin with defining and enhancing the entrance(s). Appropriate design treatments could include coordinated architecture, building materials, landscaping, signage, and site planning. For visitors, this will help confirm the sense of arrival at a distinctive place and will differentiate the airport as a unique and important destination in the community.

The airport image and design themes can be extended into the neighboring parts of the community to reflect the importance of the airport as a unique community and regional destination. This can be accomplished by enhancing way-finding signage to the airport entrance, and extending the airport "themes" (such as coordinated architecture, streetscaping, and signage) beyond the airport boundary along primary travel corridors that serve the airport area.

Compact Development Patterns and Land Uses

A compact development pattern can make efficient use of resources and existing infrastructure by directing development towards areas that are already served by infrastructure. Compact development will not only maximize investments in existing infrastructure, but will also support the conservation of open space and natural resources and help facilitate community walkability.

Case Study: Palm Springs International Airport



Source: Lucio Graca, Google Earth Panoramio.

Palm Springs International Airport (PSP), located in Palm Springs, California, is the gateway to the popular resort communities of the Coachella Valley.

PSP captures the aura of a desert resort and a business getaway. The terminal features outdoor waiting areas that take advantage of the region's sunny, dry weather and let passengers soak in some last-minute sun and scenic views of the San Jacinto Mountains before boarding. The open air waiting areas feature grassy knolls, palm trees, water features, patio seating, a wine bar, pet area, outdoor children's play area, and artwork.¹

Building on popular golf-inspired vacations to Palm Springs, the terminal includes a golf-themed restaurant, putting green, and a retail shop for golf enthusiasts.²

Source: Ricondo & Associates, June 2011.

¹ Gruszecki, Debra. "Airport Considering Improving Concessions," *The Palm Springs (CA) Desert Sun*, May 26, 2006, <http://archives.californiaaviation.org/airport/msg37535.html> (accessed March 29, 2011).

² Red Cirrus, LLC. "Palm Springs (PSP) Airport," www.ifly.com/palm-springs-international-airport (accessed March 29, 2011).

A compact development area should integrate a mix of land uses. This involves a variety of employment, retail, and service options integrated with high-quality housing opportunities for people of all income levels. By carefully planning future development patterns and land uses, areas can support a variety of other objectives including economic resiliency, sense of place, conservation and stewardship of natural resources, and mobility.

Airport Considerations: Within the airport boundary, focus should be placed on development patterns and land uses that support, maximize, and complement aviation related activities. If the amount of airport land exceeds the amount needed to serve future aviation growth, compatible non-aviation land uses that could generate revenue, such as employment, commercial, or service uses, could be considered. Ideally, these revenue-support land uses should be located at the edges of the airport, rather than internally so that they are accessible to non-airport patrons and help provide a transition between airport activities and the surrounding area. Typically, residential uses should be prohibited within the airport property boundary, although hotels or other temporary lodging facilities may be appropriate. As described to the right, a mix of compact commercial and industrial land uses on and near El Paso International Airport help make it a vibrant community and a premier center for international commerce between the U.S. and Mexico.

Because airports are often developed in the outskirts or fringe areas of communities, the extension of utilities, roads, and other infrastructure to serve these areas involves significant community investment. In order to support a compact development pattern and maximize this investment, future growth should be focused in airport environs locations that take advantage of existing or planned infrastructure. This includes redevelopment or intensification of previously developed but underutilized sites, infill development of vacant properties within predominantly developed areas, and development in new areas readily served by existing or future planned infrastructure. At the same time, development patterns can incorporate open space areas or buffer zones around the airport, especially near runway ends and beneath approaches.

Development in the airport environs should maintain or build strong connections between the airport and surrounding destinations and activity centers. Examples include extending or coordinating the airport road network to align with off-airport commercial and employment

Case Study: El Paso International Airport



El Paso International Airport (ELP) serves as a gateway for West Texas, southern New Mexico, and northern Mexico. ELP comprises 7,000 acres of land that has been developed for air service and non-aeronautical commercial and industrial purposes. Considerable undeveloped land remains and is programmed for air service support or non-aviation purposes.

The ELP Land Use Development Plan promotes compact development and emphasizes a mix of land uses. ELP features significant non-aviation development, including over 200 industrial and commercial businesses operating at the ELP's industrial parks, seven hotels, two golf courses, and a portion of the historic Butterfield Trail.

Future on-airport development will include the relocated Fort Bliss Army Airfield and a NASA astronaut training center.

Nearby, north and east of ELP, the Army has planned development to house additional troops. Additionally, land has been reserved for a new industrial park and a resort hotel with conference facilities.

Source: Ricondo & Associates, June 2011.

centers, and providing pedestrian connections from airport employment areas to area neighborhoods and services.

A mix of land uses should be encouraged, with emphasis on land uses and development patterns that provide transitions between the airport and the community and that complement aviation activities in areas bordering the airport. Additionally, where compatibility considerations allow and potential noise and safety conflicts are minimal, housing can be incorporated to provide convenient housing opportunities for area employees.

Environmental Stewardship

Responsible stewardship of the natural environment can be achieved by following best management practices that are tailored to the various environmental issues in the area. Because environmental topics generally involve resources of importance at a regional or larger scale, communities rarely can address them at a local level only. Regional coordination among organizations and governments is necessary to address most environmental issues and opportunities. Some of the major environmental topics include:

- **Air quality** – compliance with federal and state air quality requirements, improving air quality to reduce health and visual impacts (i.e., smog).
- **Climate** – reduction in greenhouse gas (GHG) emissions and preparation of climate adaptation plans and strategies.
- **Energy** – reduction of energy demand, management of energy infrastructure, conservation, and pursuit of renewable energy opportunities.
- **Environmental justice** – identification and prevention of discriminatory acts in all activities, and involvement of the public in planning and environmental decisions.
- **Open lands** – conservation and management of farmland and open spaces, and protection of other valuable natural features and resources (e.g., wildlife, critical habitat, wetlands, scenic views, etc.).
- **Solid and hazardous waste** – reduction of waste at the source, reuse of discarded materials, recycling/composting of waste materials, utilization of the waste stream for energy production, and management of landfill disposal and hazardous materials.
- **Water** – use and reuse of water, discharge of

Case Study: Chicago Department of Aviation



Source: Chicago Department of Aviation

In 2003, the City of Chicago Department of Aviation created the Sustainable Design Manual (SDM) to guide the \$6.6 billion O'Hare Modernization Program (OMP) at Chicago O'Hare International Airport (ORD). The SDM, which was intended to ensure that sustainability initiatives were included in OMP projects, was the first comprehensive guidance for incorporating environmental sustainability into airport design and construction.

In 2009, the City, with the assistance of industry collaborators around the world, updated the SDM to create the Sustainable Airport Manual (SAM). SAM is a living document that will be improved as new needs and technologies emerge. The latest version, SAM 2.0, goes beyond design and construction and into airport planning, operations and maintenance, and concessions and tenant management.

Over 50 projects have been reviewed under SDM/SAM. Projects have incorporated green roofs, conserved energy, reduced air emissions, salvaged and recycled materials, conserved water, and kept soil on-site to preserve landfill space and reduce vehicle miles traveled.

SAM provides an excellent template for airports of all types and sizes to begin developing their own sustainability practices.

Source: Ricondo & Associates, June 2011.

highly-treated wastewater, conservation of water supplies, reclamation of water supplies, and management of stormwater and urban runoff (utilizing an integrated approach or low impact development (techniques).

Airport Considerations: Within the airport boundary, airport management should apply the airport environmental best management practices identified in **Appendix A**. Those practices address the following topics:

- Air quality
- Construction
- Energy efficiency
- Hazardous wildlife management
- Ground transportation
- Noise abatement and mitigation
- Spill prevention and cleanup
- Water quality and conservation
- Waste stream reduction and recycling
- Administration and community outreach
- Geologic and fire hazards
- Greenhouse gas emissions and climate change

By creating the Sustainable Airport Manual described in the sidebar, the Chicago Department of Aviation streamlined its ability to conserve energy and water, reduce air emissions, salvage and recycle materials, install green roofs, and keep soil on-site to preserve landfill space and reduce vehicle miles traveled.

Mobility and Transportation

Communities should work to build a safe and convenient transportation network that provides mobility options for people of all ages and abilities. This includes providing a variety of transportation modes and connections so that people and goods can move freely about the community and region, and designing the network for safety, efficiency, and reliability for all modes including automobiles, trucks, transit systems, pedestrians, and bicycles.

Airport Considerations: Within airport areas interior circulation systems should be designed for the segregation of aircraft and vehicle operations for improved safety and way-finding. In addition, airport grounds should also be designed to accommodate accessibility for pedestrians, bicyclists, and transit users. These multi-modal routes should provide convenient and clear connections to important on-airport destinations, and should also link to other regional connections and facilities. To improve intermodal connectivity with the regional transportation system, Bob Hope Airport is constructing a Regional Intermodal Transportation Center (RITC). As described to the right, the RITC consolidates rail, bus, shuttle, rental car, and pedestrian services to alleviate congestion and improve mobility.

Case Study: Bob Hope Airport



Source: Burbank Airport.com

Served by Metrolink and Amtrak, Bob Hope Airport (BUR) is the only airport in the metropolitan area with a direct rail connection to downtown Los Angeles. The BUR commuter rail station also provides access to more distant cities. Free shuttle service is available from BUR to the Downtown Burbank Metrolink and the North Hollywood Metro Stations. The L.A. Metropolitan Transportation Agency also provides bus service to BUR.

In 2010, the City of Burbank and the Airport Authority developed plans for a Regional Intermodal Transportation Center (RITC), which will open in 2012. The RITC will accommodate the BUR train station, transit buses, shuttle services, and a passenger waiting lounge. The RITC will also provide consolidated facilities for the on-airport rental car companies.

The RITC will allow air, rail, bus, and rental car travelers to converge, facilitate increased use of public transit, and reduce air pollution and traffic congestion. The RITC will also include solar panels in four separate locations and a new CNG fueling facility for its shuttle bus fleet that is also open to the public.¹

Source: Ricondo & Associates, June 2011.

¹ Bob Hope Airport. "Sustainability," www.burbankairport.com/noise/sustainability.html (accessed April 1, 2011).

In the airport environs, direct, multi-modal connections to the airport should be provided from major roadways, activity and employment centers, and neighborhoods. Connecting the airport to the regional transportation system not only allows for the movement of people to and from the airport, but will also facilitate the efficient movement of goods. When possible, it may be beneficial to create or emphasize attractive corridors that lead to the airport, to improve way-finding and sense of place for visitors, and to build activity nodes that capitalize on airport activity.

Governance and Community Engagement

To achieve the outcomes desired by the application of the previous Smart Growth principles, affected agencies at all levels of government should continuously coordinate on planning issues, such as how and where future growth and development should occur. By coordinating their efforts, communities are able to see how their local decisions may affect each other and the region, and they may also find opportunities to build partnerships and improve efficiency.

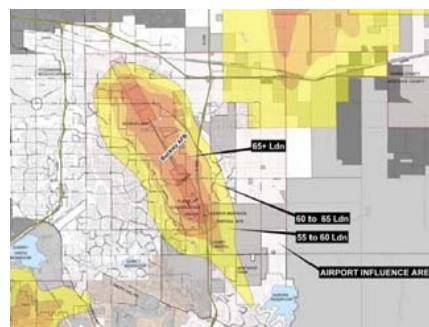
Broad community engagement and participation also plays an important role in the planning and development process. This means seeking input from stakeholders and the public before decisions are made, and working collaboratively to address problems and opportunities.

Finally, it is important to provide predictable, fair, and cost effective administration of the development process. Establishing a plan for development and change, and sticking to it, will build credibility in the eyes of the public, and will help the communities achieve their overall vision.

Airport Considerations: As described to the right, strong working relationships among airport and local government officials have helped Buckley Air Force Base promote compatible land uses and maintain a positive relationship with the community.

It is important to coordinate and engage the public in airport-related decision-making. Airport-related decisions, such as the location of runways, airport entrances, and aircraft circulation patterns, can have significant impacts on the airport itself, as well as the surrounding environs areas and communities. By soliciting a range of ideas from the impacted communities and citizens, there will be more buy-in and support for airport activities. Similarly, regular coordination among the airport operator and neighboring communities can help reduce conflict and build opportunities for enhancing the airport and environs.

Case Study: Buckley Air Force Base



Source: ACRP Report 27, Enhancing Airport Land Use Compatibility, Volume 2: Land Use Survey and Case Study Summaries, p. 2.37.

Buckley Air Force Base is located in Aurora, Colorado, a suburb of Denver. The base contributes an estimated \$1.09 billion to the regional economy.¹ The economic benefits of the base are widely recognized and highly valued by local governments and the community at large.

The Air Force has prepared an Air Installation Compatible Use Zones (AICUZ) study for Buckley, which includes a noise contour map and recommended safety zones. Both the City of Aurora and Arapahoe County have enacted zoning regulations implementing the AICUZ study. Developers and builders, however, continue to seek changes in the zoning to allow incompatible residential development within the compatibility zones.

Aurora and Arapahoe County regularly coordinate with Buckley officials. City refers proposals for development within the airport influence area to Buckley planners for review and comment. Buckley officials have appeared at City Council hearings on development proposals to advocate their views. This ongoing coordination has been essential in helping the agencies reinforce each other's efforts to promote compatible land use in the airport influence area.

Source: Ricondo & Associates, June 2011.

¹ ACRP Report 27, Enhancing Airport Land Use Compatibility, Volume 2: Land Use Survey and Case Study Summaries, p. 2.27. The balance of this discussion is also based on information provided in the case study of Buckley AFB in ACRP Report 27.

4.4 Applying the Framework to Airports and Airport Environs

The Airport Smart Growth Framework can be used to analyze existing plans for airports and surrounding environs and how they may or may not achieve the principles of Smart Growth and airport compatibility. The Airport Smart Growth Framework can be applied to newly developing areas to examine the adequacy of future plans, and also can be applied to developed areas to assess compatibility issues and identify opportunities for future change or redevelopment.

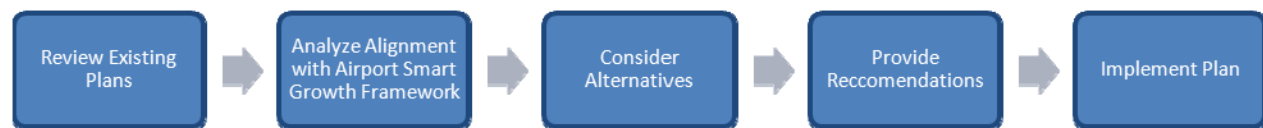
In newly developing areas, the Framework can be used to envision and shape future development patterns and land use activities, ensuring compatibility with the airport and maximizing the potential for activities that are mutually beneficial to the airport and surrounding environs. In areas that are predominantly developed, the Framework can be used to determine where there are opportunities to enhance compatibility and reduce airport-related conflicts through redevelopment or policy changes. New development patterns and land uses will not likely be the focus of the evaluation in a predominantly developed setting, but rather topics such as environmental and economic impacts and opportunities, and intergovernmental coordination will likely emerge as areas for enhanced alignment.

The Framework can also be applied to airports of all kinds, ranging from major commercial airports to small general aviation facilities. While the scale of the compatibility issues and the range of potentially feasible non-aeronautical development will vary with different airports, the nature of the Smart Growth and airport compatibility considerations will remain the same at these varied airports.

Exhibit 1 below summarizes the application of the Airport Smart Growth Framework in various airport environments, as detailed in the following sections.

Exhibit 1

The Process of Applying the Airport Smart Growth Framework to Airport and Airport Environs



Source: Ricondo & Associates, Inc. and Clarion Associates, LLC, June 2011.
Prepared By: Ricondo & Associates, Inc. and Clarion Associates, LLC, June 2011.

4.4.1 Review Existing Plans

To begin, it is important to review all existing and relevant adopted plans and guidelines for the subject airport and surrounding environs areas. This may include but is not limited to community General Plans (or comprehensive plans), Specific Plans, Master Plans, Airport Land Use Compatibility Plans, Regional Transportation Plans, and Economic Development Strategies. Adopted policies and guidelines, as well as official maps (such as future land use maps and master street plans) should be reviewed. To the extent that the airport environs are already developed, it is also important to review existing patterns of development. Topics to focus on during the review of existing plans, maps, and development patterns include:

- **Economic Development** – What will be the area’s role in the local/regional economy?
- **Urban Design** – How will the area look in the future?

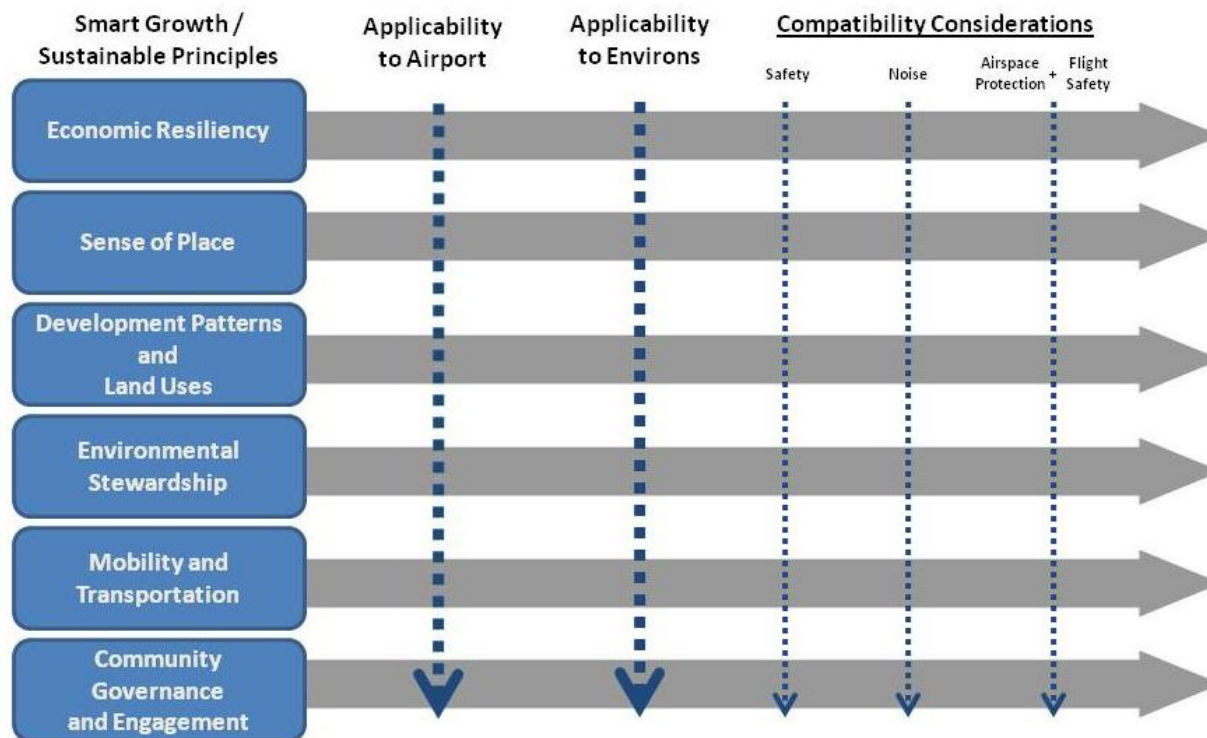
- **Land Uses and Development Patterns** – What types of future land uses are specified? Where and what kind of development and/or redevelopment will occur? What existing development patterns and land uses will remain?
- **Environmental Practices** – How will the area provide stewardship of the natural environment and conserve natural resources?
- **Mobility and Transportation** – What kinds of transportation options will exist to move people and goods throughout the area and region?
- **Administration and Public Participation** – How will future plans be administered and implemented? How is the public involved in the planning process? Are adequate provisions provided for interjurisdictional coordination?
- **Airport Compatibility** – What will be done to ensure compatibility between the airport and other surrounding areas?

4.4.2 Analyze Alignment with Airport Smart Growth Framework

Next, after reviewing existing plans and development patterns for the airport and environs areas, work methodically through the Airport Smart Growth Framework to evaluate the strengths, weaknesses, opportunities, and constraints of the existing adopted plans, policies, maps, and development patterns align in accordance with the principles and guidelines contained in the Framework (see **Exhibit 2**).

Exhibit 2

Analyzing Alignment of Existing Plans with the Airport Smart Growth Framework



Source: Ricondo & Associates, Inc. and Clarion Associates, LLC, June 2011.
Prepared By: Ricondo & Associates, Inc. and Clarion Associates, LLC, June 2011.

For example, begin in the first row (Economic Resiliency) and the left column (Smart Growth/Sustainable Planning Principle), and ask “*Do the existing plans promote entrepreneurship and innovation? Do existing plans support the development of a wide variety of jobs?*” Move to the next column (Application within Airport Boundary) and ask “*Do the existing plans support aviation activities and promote aviation-related services and employment? Are there opportunities for non-aviation related activities at the airport to generate additional revenue?*” Next, move to the third column (Application within Airport Environs) and ask “*Do existing plans promote a variety of retail and services to meet the area’s needs? Are businesses that complement airport activities encouraged?*” Finally, the next three columns (Compatibility Considerations) provide guidance related to noise, safety, airspace protection, and flight safety. Determine if the current plans abide by these compatibility considerations by asking “*Do existing plans result in any potential compatibility issues with the airport?*”

During the analysis it is beneficial to take notes in each cell of the Airport Smart Growth Framework matrix. Notes should be organized into two categories: (1) strengths of existing plans (areas where existing plans align well with the Airport Smart Growth guidelines and where opportunities exist), and (2) areas for improvement or weaknesses of existing plans (areas where there may not be strong alignment with the Airport Smart Growth guidelines, existing constraints that must be considered, and potential airport compatibility issues). A model template for organizing notes during this stage is provided in **Table 3**.

4.4.3 Consider Alternatives

After analyzing the strengths, weaknesses, opportunities, and constraints of existing plans (and development patterns) and their adherence with the guidelines of the Airport Smart Growth Framework, develop a list of options or alternatives to enhance the existing plans’ alignment with the Framework guidelines. The following questions may be helpful in generating potential alternatives:

- What are the greatest opportunities to address weaknesses and improve the alignment between existing plans and development patterns and the Airport Smart Growth Framework?
- What are the greatest strengths and opportunities from the existing plans and development patterns that could be leveraged to improve potential for success in other areas?
- What existing constraints/limitations must be acknowledged? Are there alternatives to address or reduce these constraints?

Possible options or alternatives might include adjustments to the existing plan policies or guidelines, map revisions, improvements to administrative procedures, or other ideas. For example, a new rapid transit bus route in the airport environs could be an opportunity to enhance the region’s mobility (and be consistent with the Airport Smart Growth Framework principles), but one alternative might include a slight realignment of an existing or proposed route so that the route stops directly at the airport, which would in turn enhance mobility options for airport users and employees.

To the extent possible, analysis of the potential alternatives is recommended. Analysis may include quantitative methods (such as fiscal impact and traffic impact analyses), qualitative methods (such as perceived strengths and weaknesses), or a combination of both. However, relatively minor adjustments may not warrant detailed analysis.

Consideration and review of alternatives should involve affected stakeholders, including airport authorities, community representatives, and other affected parties.

Table 3 (1 of 2)

Template for Analysis of Existing Plans

Smart Growth/Sustainable Planning Principle	Application within Airport Boundary	Application within Airport Environs	Compatibility Considerations		Airspace Protection and Flight Safety
			Noise	Safety	
Economic Resiliency					
<u>Strengths of Existing Plans</u>	<u>Strengths of Existing Plans</u>	<u>Strengths of Existing Plans</u>	<u>Strengths of Existing Plans</u>		
<u>Areas for Improvement</u>	<u>Areas for Improvement</u>	<u>Areas for Improvement</u>	<u>Areas for Improvement</u>		
Sense of Place					
<u>Strengths of Existing Plans</u>	<u>Strengths of Existing Plans</u>	<u>Strengths of Existing Plans</u>	<u>Strengths of Existing Plans</u>		
<u>Areas for Improvement</u>	<u>Areas for Improvement</u>	<u>Areas for Improvement</u>	<u>Areas for Improvement</u>		
Compact Development Pattern and Land Uses					
<u>Strengths of Existing Plans</u>	<u>Strengths of Existing Plans</u>	<u>Strengths of Existing Plans</u>	<u>Strengths of Existing Plans</u>		
<u>Areas for Improvement</u>	<u>Areas for Improvement</u>	<u>Areas for Improvement</u>	<u>Areas for Improvement</u>		

Chino Airport**Table 3 (2 of 2)**

Template for Analysis of Existing Plans

Smart Growth/Sustainable Planning Principle	Application within Airport Boundary	Application within Airport Environs	Compatibility Considerations		
			Noise	Safety	Airspace Protection and Flight Safety
Environmental Stewardship					
<u>Strengths of Existing Plans</u>	<u>Strengths of Existing Plans</u>	<u>Strengths of Existing Plans</u>	<u>Strengths of Existing Plans</u>		
<u>Areas for Improvement</u>	<u>Areas for Improvement</u>	<u>Areas for Improvement</u>	<u>Areas for Improvement</u>		
Mobility and Transportation					
<u>Strengths of Existing Plans</u>	<u>Strengths of Existing Plans</u>	<u>Strengths of Existing Plans</u>	<u>Strengths of Existing Plans</u>		
<u>Areas for Improvement</u>	<u>Areas for Improvement</u>	<u>Areas for Improvement</u>	<u>Areas for Improvement</u>		
Governance and Community Engagement					
<u>Strengths of Existing Plans</u>	<u>Strengths of Existing Plans</u>	<u>Strengths of Existing Plans</u>	<u>Strengths of Existing Plans</u>		
<u>Areas for Improvement</u>	<u>Areas for Improvement</u>	<u>Areas for Improvement</u>	<u>Areas for Improvement</u>		

Source: Ricondo & Associates, Inc. and Clarion Associates, LLC, June 2011.
Prepared by: Ricondo & Associates, Inc. and Clarion Associates, LLC, June 2011.

4.4.4 Provide Recommendations

After gathering feedback about and considering the potential alternatives, determine the preferred alternative for each option. Together this combined set of preferred alternatives comprises the “Airport Smart Growth Scenario.” The Airport Smart Growth Scenario represents the potential enhancements and adjustments to existing plans so that they align with the principles of Airport Smart Growth planning.

Next, based on the preferred alternatives, develop recommendations that will help achieve the directions envisioned in the Airport Smart Growth Scenario. Recommendations might include:

- Possible adjustments or modifications to existing plans and development patterns (e.g., revised maps, amended policies, etc.)
- Suggestions for new plans, policies, or regulations (e.g., new design standards, new airport overlay zone, etc.)
- Recommended public improvements (e.g., street improvements, bridge repair, etc.)
- Ideas for potential partnerships and programs (e.g., public/private partnership, coordination committee, etc.)

4.4.5 Implement Plan

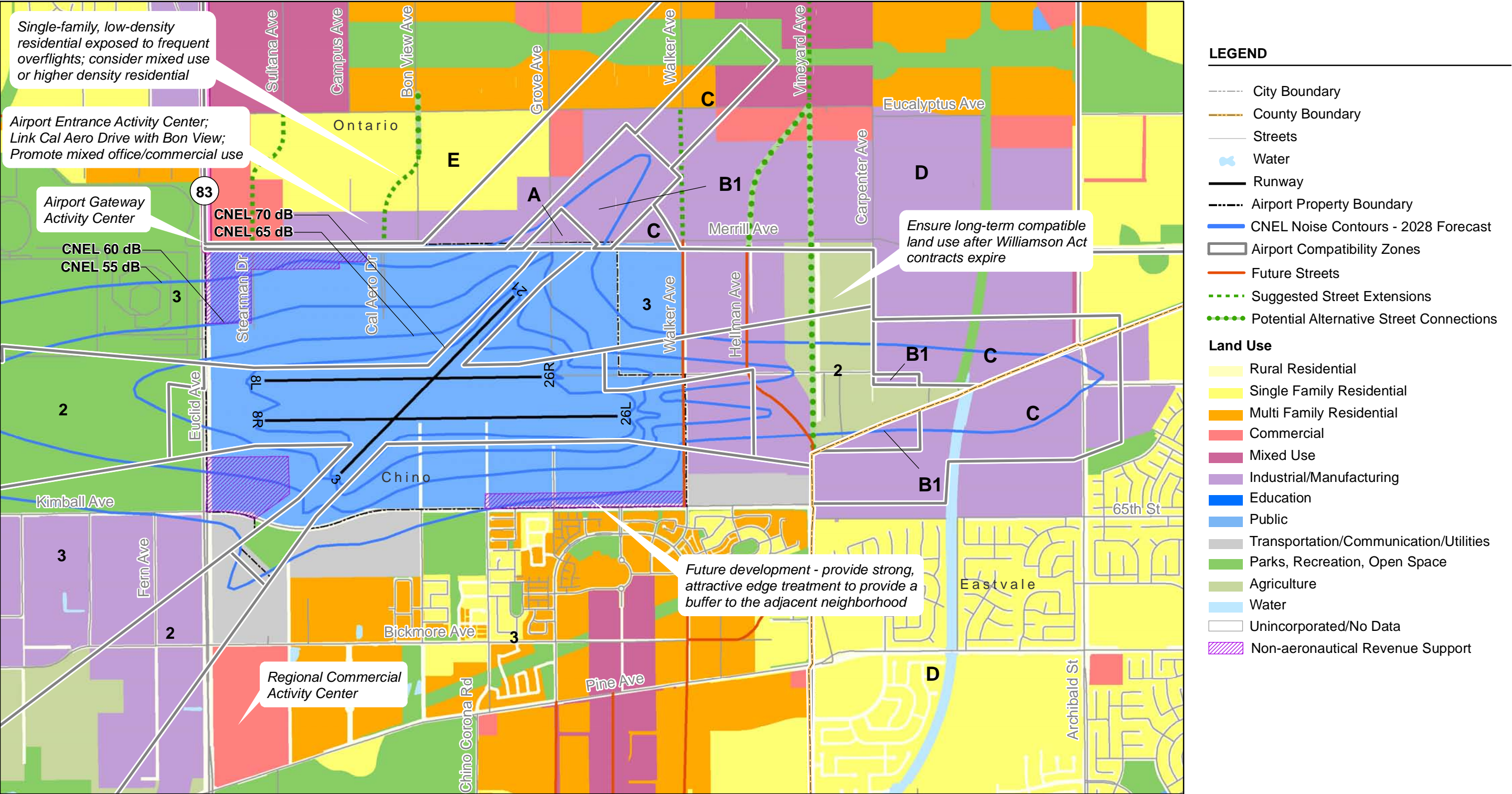
Implementation of the recommendations may come about in various ways. Some of the recommendations may be implemented through physical improvements, such as upgraded infrastructure, while other recommendations may be best implemented through adjustments to policies, regulations, and/or administrative procedures. This may include revisions to existing General (or comprehensive) Plans, new planning efforts or other initiatives, and new partnerships and programs. Each implementation task should include details about what type of action is necessary, resources it will take to achieve, and the responsible parties.

Monitoring of the plan and its implementation over time will ensure that it remains beneficial and in alignment with Airport Smart Growth objectives. Periodic adjustments may be necessary to reflect local trends and changing conditions, both at the Airport and in the environs.

V. Recommended Chino Airport Smart Growth Plan – A Case Study

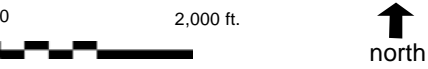
Chino Airport and its environs served as a case study for the application of the Airport Smart Growth Framework, as described in Section 4.3. While the plans for Chino Airport and its environs have many consistencies with the guidelines of the Airport Smart Growth Framework, there are some areas for improvement and enhanced alignment. Together, the following recommendations comprise the Chino Airport Smart Growth Plan, a refined plan for future growth and development at Chino Airport and its environs that builds on existing efforts and integrates the Airport Smart Growth principles. **Exhibits 3 and 4** summarize these recommendations.

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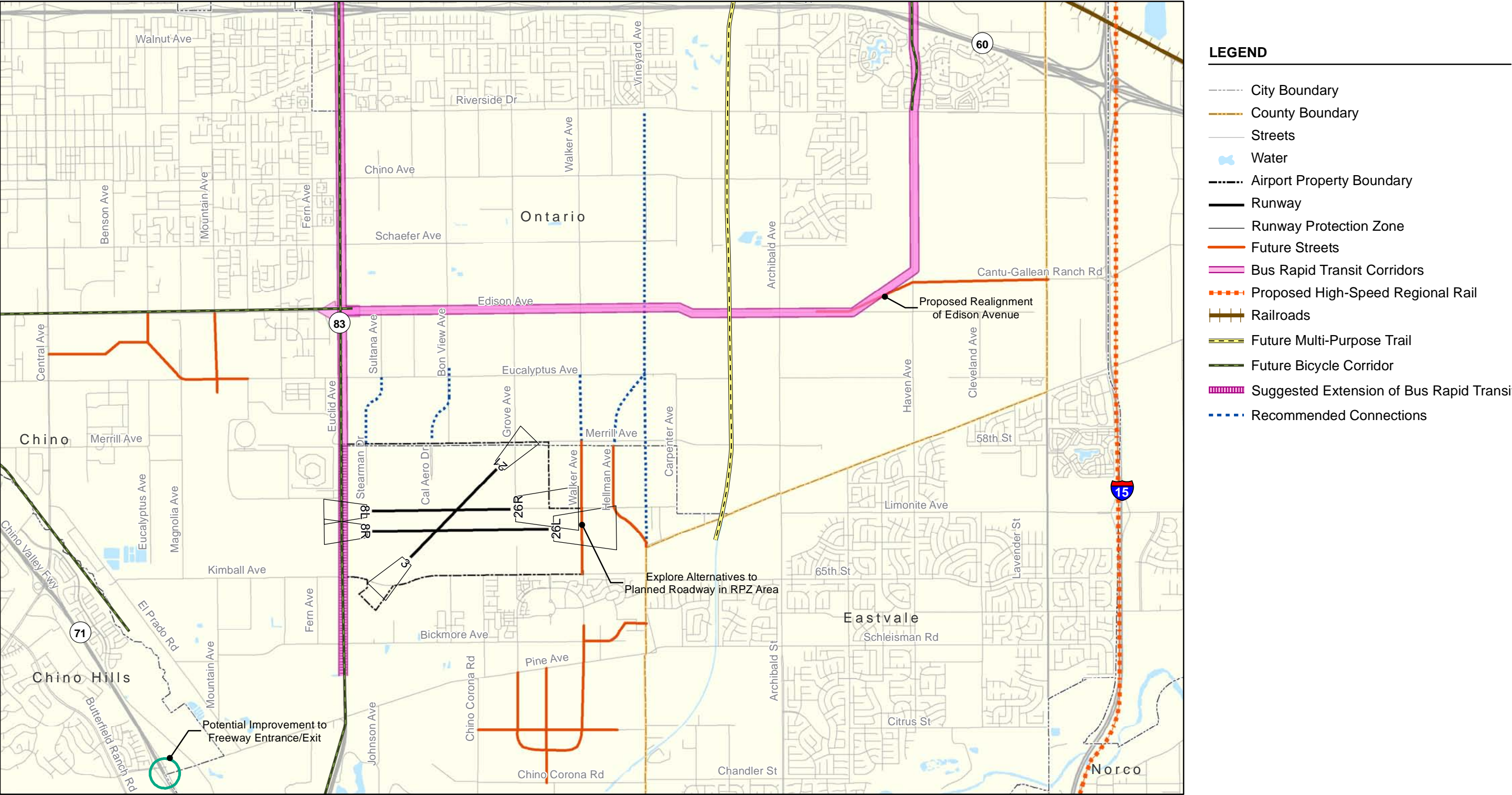
Sources: Southern California Association of Governments, 2009 (streets, city boundaries, county boundaries, water, general plan land use, transportation improvements); City of Chino, 2010 (general plan land use); City of Ontario, 2010 (land use plan); Ricondo & Associates, Inc., 2010 (study area boundary); Riverside County ALUCP, 2008 (CNEL noise contours, compatibility zones); San Bernadino County CLUP, 1991 (airport safety zones); City of Ontario, Mobility Element System (accessed February 3, 2010) (transportation and future improvements); City of Chino General Plan 2025, July 2010 (future transportation improvements); City of Eastvale, 2010 (Eastvale city boundary). Prepared by: Ricondo & Associates, Inc., 2011.

Exhibit 3



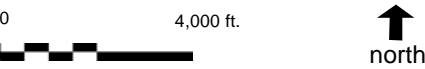
Land Use Recommendations

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Sources: Southern California Association of Governments, 2009 (streets, city boundaries, county boundaries, water, future transportation improvements), City of Ontario, Mobility Element System (accessed February 3, 2010) (transportation and future improvements); City of Chino General Plan 2025, July 2010 (future transportation improvements); City of Eastvale, 2010 (Eastvale city boundary).
Prepared by: Ricondo & Associates, Inc., 2011.

Exhibit 4



Transportation Recommendations

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5.1 Land Use

Various levels of development are evident at Chino Airport and its environs, including a mix of well-established existing land uses and development patterns that will not likely experience much change in the future, areas that will likely redevelop and intensify over time, and areas where new development is likely to occur. While the existing future land use plans for Chino, Ontario, and Chino Airport are generally consistent with the Airport Smart Growth principles, including designating a mix of future land uses and striving for compact development patterns, there are several opportunities to enhance synergy and economic resilience through future land uses, and to improve compatibility and transitions between future land uses, as described in the sections below.

5.1.1.1 Activity Centers

Activity centers are areas that are developed more intensely than their surroundings and include a range of land uses that generate high levels of activity and interaction. By emphasizing the development of several key activity centers near the Airport, there are opportunities to enhance synergy between land uses and improve the economic resiliency of the entire Airport area.

Euclid/Merrill Intersection

First, the land at the intersection of Merrill and Euclid Avenues is well-situated to become the Airport's primary gateway and the area's main activity center (see Exhibit 3). Ontario's Land Use Plan designates this area for commercial development, but coordination with the adjacent Chino Airport and City of Chino is vital in this area to establish a mix of permitted uses that will complement and support Airport users and employees, as well as nearby neighborhoods. Future land uses could possibly include lodging, dining establishments, ground transportation, and other business service uses. As discussed in the Urban Design section below, a coordinated and distinctive appearance of this activity center is important to establish its unique identity and role in the airport area.

Land Use Recommendations

Activity Centers

- Emphasize Merrill/Euclid Avenue intersection as new mixed-use activity center and Airport gateway
- Support development of a regional commercial center near Euclid/Bickmore Avenue

Compatibility and Transitions

- Use development along Airport's southern edge to form a transitional buffer between Airport activities and adjacent neighborhoods
- Explore opportunities to use excess Airport property for nonaeronautical development and interim environmental projects or uses
- Enhance alignment between Cal Aero Drive and roadways to the north to support mixed-use and higher intensity development
- Consider alternate future use, preferably industrial, of agricultural preserve property east of the Airport

Euclid Regional Commercial Center

The City of Chino should also continue to pursue and support the development of the regional commercial center near Euclid and Bickmore Avenue, as depicted on the Land Use Plan (see Exhibit 3). Development of this regional activity center will likely increase the number of visitors and trips to the area, and as a result may increase visibility and awareness of Chino Airport. Again, coordination with the San Bernardino County Department of Airports on the development of this area is important because this may also be an important or desirable location for land uses that serve a regional market and/or complement the Airport, such as lodging or dining establishments.



View Looking Northeast at Potential Development at the Merrill and Euclid Avenue Intersection

The Euclid/Merrill Avenue intersection and the Euclid Avenue Regional Commercial Center are prime locations for activity centers -- condensed nodes of development that are pedestrian-oriented and feature a mix of uses. The rendering shows a potential mixed-use activity center located at the Airport Gateway, directly north of Chino Airport at the Euclid/Merrill Avenue intersection. Note the design features intended to improve the pedestrian appeal of Euclid Avenue, including a crosswalk and pedestrian refuge in the median on Euclid Avenue, the separation of the sidewalk from the curb, and the use of landscaping.

5.1.1.2 Compability and Transitions

As Chino Airport and the surrounding area develop and intensify over time, there are a few areas where land use compatibility issues may arise. However, since much of the development has yet to occur, opportunities exist to adjust and refine the area's future land uses and development patterns to improve future compatibility and to establish land use transitions in potential areas of conflict.

Airport's Southern Edge

The emerging Preserve neighborhood is located directly south of Chino Airport with little separation between Airport operations and residential uses other than Kimball Avenue. Because of the potential for future conflicts between Chino Airport and The Preserve (primarily noise, overflight, and visual impacts, and possible incompatibility of future revenue-support uses on Airport property) this plan recommends that future development along the Airport's southern edge be carefully planned and designed to function as a "transitional buffer" (see Exhibit 3). This includes orienting buildings in this area longitudinally (east-west orientation rather than the north-south configuration of existing

development in this area), and the staggering of buildings to minimize aircraft noise penetration. Ideally, aviation-related activities should occur on the northern side of such buildings, with the south faces of the buildings featuring façades that are attractive to neighbors and motorists. Other elements of this transitional buffer may include a generous setback with meandering sidewalk (similar to the established pattern on the south side of the roadway), and screening through extensive landscaping, attractive fencing, and/or walls.

In addition to the aforementioned buffer elements, the San Bernardino Department of Airports may also want to explore the possibility of using some of the underutilized and/or excess Chino Airport property (especially in the large expanse of undeveloped land along the Airport's southern edge) to enhance environmental stewardship, either on an interim or permanent basis. Such land uses or projects might include solar arrays, low-profile wind turbines, or community gardens that could also include design and landscaping features to help establish a transitional edge with low-intensity uses between the airport and nearby neighborhoods.



View Looking West Along Kimball Avenue Showing Potential Airport Development Providing Transitional Buffer to Residential Neighborhood South of Kimball

Transitions and compatibility between aeronautical and nearby non-aeronautical uses can be enhanced through appropriate placement of new buildings, parking and loading areas, landscaping, and other design elements such as walls or fences.

Source: Clarion Associates, June 2011.

Airport Entrance

Another area of potential conflict between Airport operations and future land uses is the proposed low-density residential area north of Chino Airport and Merrill Avenue in Ontario's planned New Model Colony (see Exhibit 3). While located outside of the Airport's CNEL 55 dB noise contour, this proposed low-density residential area will likely be subject to significant aircraft overflight activity and noise (especially from helicopters). Moderate to high density residential or mixed-use development in this area would generally be more compatible with the aircraft overflights than lower density residential, due to the higher levels of ambient noise associated with higher intensity

Chino Airport

development, the lesser importance that is generally attributed to outdoor use of the property in higher density developments, and the generally different expectations of residents in higher density developments. In order to facilitate this shift from lower-density residential to a higher-intensity mixed-use environment, this Smart Growth Plan recommends that Ontario and the San Bernardino Department of Airports seek opportunities to connect Cal Aero Drive with the roadway system to the north in Ontario's planned New Model Colony area (ideally connecting Cal Aero Drive to Bon View Avenue). Realignment of the roadway and creation of a 4-way intersection may help the area to draw and support a broader range of uses such as employment, commercial, and moderate to high density residential because many retailers and commercial users find a four-way intersection generally more desirable than a 3-way "T" intersection.



Plan view of recommended connections between Cal Aero Drive and Bon View Avenue and between Stearman Drive and Sultana Avenue.

Source: Ricondo & Associates, Inc., June 2011.

Agricultural Preserve

Finally, the agricultural preserve area located east of the Airport (south of Merrill and west of Carpenter Avenue) also merits consideration. While this use is currently compatible with the Airport, this plan recommends that the City of Chino consider the alternate use of the property in the distant future if the agricultural preservation designation lapses. Areas immediately surrounding the agricultural property are designated for future industrial use – a designation which would likely be suitable for this property if continued agricultural preservation becomes infeasible.



View of Higher Intensity/Mixed Use Development Along Merrill Avenue Looking East

Potential conflicts between Chino Airport and surrounding uses may be reduced by emphasizing higher intensity and/or mixed use development in the area designated for lower density residential, north of Merrill Avenue. Realignment of Bon View Avenue may help enhance the potential for this type of development. The photo simulation on the left shows Cal Aero Drive ending at Merrill Avenue. The simulation at right shows a potential extension of Cal Aero Drive across Merrill, linking with Bon View Avenue, to create a 4-way intersection, opening up opportunities for more intense development in this area.

Source: Gary Thomas, June 2011.

5.2 Transportation

The transportation network in the Chino Airport area is fairly well-established although long-term transportation plans prepared by the City of Chino, City of Ontario, and the Southern California Association of Governments (SCAG) identify a number of improvements that will enhance mobility in the region. In addition to implementing the improvements recommended in those adopted plans, there are additional opportunities to enhance the transportation network at Chino Airport and in the Airport environs area in order to improve alignment with the Airport Smart Growth principles. These recommendations for targeted improvements to the roadway network and transit system are described in the sections below.

5.2.1.1 Roadway Network

Connectivity

The transportation plans for Chino and Ontario call for several roadway extensions to improve connectivity for the area surrounding Chino Airport. In addition to constructing those extensions, it is recommended that the communities pursue opportunities to further improve north-south connectivity in the Airport environs area (especially local and/or collector level roadways). In particular, an additional continuous north-south roadway east of Euclid Avenue and west of Archibald Avenue would help improve trip distribution. As depicted in Exhibit 4, recommended north-south connections in this area include:

- Extension and realignment of Hellman Avenue east of Chino Airport so that it connects with Vineyard Avenue to the north.
- Extension of Vineyard Avenue in Ontario south to connect with Merrill Avenue, which may involve adjusting the Vineyard Avenue alignment so that it connects with Hellman Avenue. Extension of Walker Avenue in Ontario south to Merrill Avenue.
- Connection of Chino Airport's Stearman Drive into the larger grid network by extending it north to join with Sultana Avenue.

The planned extension of Walker Avenue between Kimball Avenue and Merrill Avenue would present airport compatibility challenges. The road would traverse the Runway 26L Runway Protection Zone (RPZ), where the Draft Master Plan development concept calls for the installation of an Instrument Landing System (ILS). The FAA's airport design standards advise that, wherever possible, RPZs remain free of structures and objects that could present potential safety problems and interfere with navigational aids.⁹ It is recommended that the City of Chino and the San Bernardino County Department of Airports coordinate on alternatives to the extension of Walker Avenue through the Runway 26L RPZ.

Transportation Recommendations

Roadway Network

- Improve north-south connectivity and multi-modal routes between Chino and Ontario and between the Airport and other regional destinations
- Explore realignment of Bon View Avenue to connect with Cal Aero Drive
- Consider alternatives to the extension of Walker Avenue through the Runway 26L RPZ
- Improve wayfinding signage and direct routes to Chino Airport

Pedestrian and Bicycle Network

- Accommodate pedestrians and bicyclists in all areas through enhanced crossings, designated facilities, and other treatments and design features

Transit System

- Coordinate future bus rapid transit system improvements

⁹ FAA Advisory Circular 150/5300-13, Airport Design, Section 212.

Chino Airport

Also, as discussed in Section 5.1, another recommendation is to explore the realignment of Bon View Avenue to connect with Cal Aero Drive near the Airport entrance. This realignment would help connect the Airport into the larger grid network of roadways and would consolidate two 3-way intersections into a full 4-way intersection near the Airport entrance.

All future roadways or roadway extensions in the immediate Airport environs that would trigger the requirements in 14 CFR Part 77, Section 77.9 must be reviewed by the FAA for compliance with airspace obstruction standards. This would involve the filing of a Notice of Proposed Construction or Alteration (FAA Form 7460-1) with the FAA.¹⁰

Wayfinding

Wayfinding improvements are also recommended to make Chino Airport easier to find from the region's major thoroughfares, including Interstate 15, SR 71 and SR 60. While some wayfinding and directional signage to Chino Airport already exists, enhanced directional signage and other improvements such as coordinated streetscape design and enhanced community gateways (also see Section 5.3) would improve the ease of finding Chino Airport. Improvements to frequently-traveled roadways and congestion points will also improve accessibility of the Airport, as well as regional mobility. For example, improvements to the frequently congested State Route 71 entrance/exit ramp at Pine Avenue would provide an additional route to the Airport and region from Orange County.



View of Improved Wayfinding Along Euclid Avenue Looking North

The photo simulation illustrates improved wayfinding along Euclid Avenue. Themed airport banners hanging from streetlights, a large entrance monument sign, and directional signs help highlight the presence of Chino Airport along this busy regional corridor.

Source: Gary Thomas, June 2011.

¹⁰ For more information, refer to the website, <https://oeaaa.faa.gov/oeaaa/external/portal.jsp>.

Pedestrian and Bicycle Network

As Chino Airport and the surrounding environs develop and intensify over time, additional accommodations and facilities for pedestrians and bicyclists should be included in all roadway improvements. In addition to continuous and comfortable sidewalks, pedestrian improvements should include enhanced intersection crossings for improved safety and pedestrian-scale features such as benches, plazas, trash and recycling receptacles, and other amenities integrated into streetscapes and developed areas. Bicyclists should be accommodated in either generously wide on-street lanes or off-street pathways. Other bicycle amenities to be integrated at the Airport and in neighboring development include adequate bicycle parking/racks, bicycle racks on transit vehicles, and perhaps solar powered air compressors and/or bicycle pumps along major bicycle thoroughfares.

Transit System

The planned future bus rapid transit (BRT) corridors along Euclid and Edison Avenues present opportunities to improve mobility and transportation options in the Airport environs. This Smart Growth Plan recommends that Chino, Ontario, and the San Bernardino County Department of Airports coordinate during the planning of the future Euclid Corridor line, especially since preliminary plans show the route terminating at or near Chino Airport. BRT coordination should address transit stop locations, short and long-term auto parking, pedestrian and bicycle accessibility and connections, transit operations/service, and integration with surrounding and complementary land uses. Also, if possible or when development occurs, the Euclid Avenue BRT route should be extended to serve the future regional commercial center south of the Airport near Bickmore Avenue.



View of Potential Improvements Along Merrill Avenue Looking East

The photo simulation illustrates potential improvements to Merrill Avenue to make it comfortable and accessible for various transportation users. Improvements include bicycle lanes, landscaped median, bus service, and pedestrian amenities such as sidewalks, benches, and gathering places.

Source: Gary Thomas, June 2011.

5.3 Urban Design

A distinct character is starting to emerge in new development areas surrounding Chino Airport, such as The Preserve neighborhood, and through urban design improvements to the Airport itself. Yet much of the airport environs is still undeveloped, and as the surrounding areas continue to develop and evolve over time, it will be important to coordinate design in order to establish a unique identity and strong sense of place for the Airport area.

Urban Design Recommendations

Visual Character

- Develop a coordinated vision and design theme for the identity of the Airport and environs
- Improve the visual profile of Airport buildings
- Highlight community gateways, unique neighborhoods, and activity centers
- Utilize strong and attractive edge treatments along Airport perimeter

5.3.1.1 Visual Character

Visual character is the image and quality of development that sets an area apart from everywhere else and leaves a lasting impression on visitors. Emphasis on creating a distinct visual character can build an area's identity as a unique destination and place where people want to spend time, which in turn helps build economic prosperity and resilience.

Coordinated Design Theme

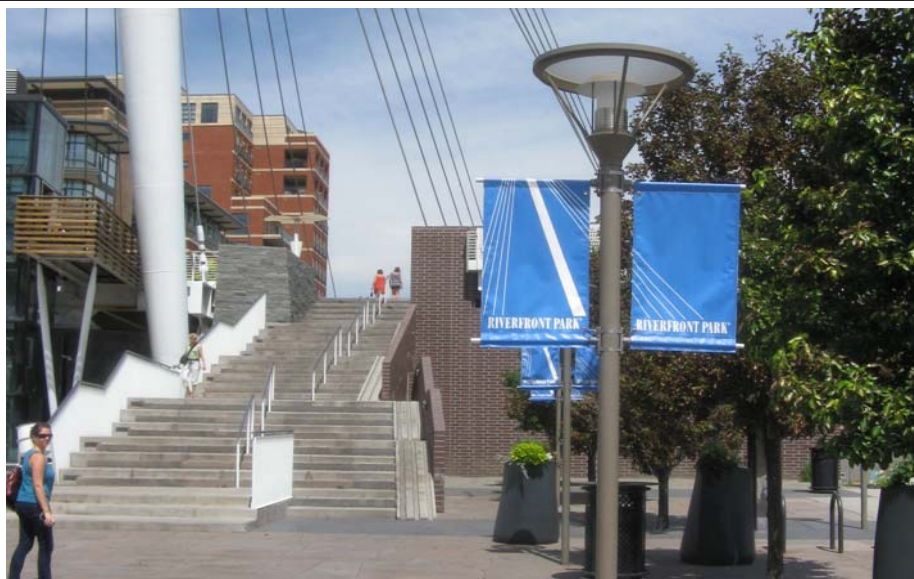
As the Airport and surrounding areas develop and change over time, this Smart Growth Plan recommends that Airport management coordinate with Chino and Ontario staff and area property owners to establish a vision and develop a coordinated design theme to enhance the visual character of the Airport and environs. This coordinated theme should be integrated into the streetscapes of the area's major roadways like Euclid, Merrill and Kimball Avenues (e.g., coordinated landscaping, lighting, and signage, etc.), and should be reflected in Airport entrances and new building architecture (on and near Airport property). Existing assets that may help shape the design theme include:

- Historic aviation (building on the aviation museums and emerging historic aviation theme at Chino Airport);
- Outdoor-oriented, casual southern California lifestyle (emphasizing simple, modern designs and natural materials, and outdoor amenities in public spaces and pedestrian rights-of-way); and
- Historic Spanish/southwestern style (incorporating traditional architectural materials and design features).

In addition to enhancing the sense of place of the Airport environs, this Smart Growth Plan recommends that the Airport continue to work to improve the visual character of all Airport buildings in order to enhance visitor experience and perception (as identified in the Draft Chino Airport Master Plan). Improvements to the terminal facility are of paramount importance, followed by other frequently visited and viewed buildings, including museums and other buildings located at the Airport entrance, and buildings along major corridors (e.g., Euclid and Kimball Avenues) and adjacent to neighborhoods (e.g., The Preserve). While it may be unrealistic to pursue large-scale rehabilitation or redevelopment of many of the Airport's existing buildings, smaller-scale, context-sensitive visual improvements such as façade enhancements, landscaping, continuation of the historic images/murals along Cal Aero Drive, and additional art/murals should be emphasized. If landscaping or water features are used to improve the visual character of the Airport or immediate

Airport environs, it is important to ensure that these features avoid attracting potentially hazardous wildlife.¹¹

As new development occurs in the Airport environs, this Smart Growth Plan recommends that communities and the San Bernardino Department of Airports coordinate to emphasize the “airport theme” in appropriate locations around Chino Airport, while at the same time working to build and highlight the unique identities of new activity centers, neighborhoods, and community gateways. For example, Chino should continue to pursue the development of a unique and attractive regional commercial center south of the Airport, emphasizing the area as an important community gateway, while at the same time tying the streetscape into the thematic vision for the Euclid Avenue Corridor to enhance the visitor experience and wayfinding to Chino Airport.



A coordinated design theme reflected in urban design improvements (like the example above at Riverfront Park in Denver, Colorado) will enhance the visual profile of the Airport and surrounding area and will help establish it as a unique place in the Inland Empire area of California.

Source: Clarion Associates, June 2011.

Edge Treatments

As new development occurs along the Airport’s edges (particularly the southern edge) it will be important to establish strong and attractive edge treatments (e.g., fences/walls, landscaping, strategic building placement) to buffer Airport operations and improve visual perceptions (see discussion in Section 5.1). This need not involve, however, the complete screening of the Airport from neighboring areas. Because the Airport itself is an important focus of development and the basis for a key design theme in the environs, views of the Airport should be preserved where appropriate. At selected locations lateral to the runways, views across the Airport, framed by appropriate edge and foreground treatments, may provide visual interest without risking noise impacts from Airport ground operations. Views of the airport traffic control tower and the adjoining hangars along the flight line could be especially attractive visual features.

¹¹ Design guidance is available from the FAA. Also, see FAA Advisory Circular 150/5200.33B, *Hazardous Wildlife Attractants on or Near Airports*, p. 5.

5.4 Implementation Considerations

As the land use, transportation, and urban design recommendations from the previous sections are considered and incorporated into future plans and improvements for the Cities of Chino and Ontario, as well as Chino Airport, several other factors should also be considered for implementation. These implementation considerations include regulatory and policy modifications, and also enhanced administrative procedures to ensure long-term viability and success of the Chino Airport Smart Growth Plan.

5.4.1 Policy and Regulatory Modifications

The following sections propose adjustments and updates to the adopted policies and regulations for the City of Chino, City of Ontario, and the San Bernardino County Department of Airports in order to implement the recommended Chino Airport Smart Growth Plan.

5.4.1.1 ALUCP Update for San Bernardino County Portion of Airport Influence Area

The airport land use compatibility plan for Chino Airport that currently applies to the San Bernardino County portion of the airport influence area is in need of updating.¹² Under the “alternative process” through which airport land use compatibility planning is performed in San Bernardino County, the City of Chino is responsible for the Airport Land Use Compatibility Plan (ALUCP). The ALUCP should be updated after approval of the updated Chino Airport Master Plan, as the ALUCP must reflect the updated Airport Master Plan and be based on the activity forecasts in the Master Plan. The updated ALUCP should also consider the guidance in the Caltrans updated *Airport Land Use Planning Handbook*, which is expected to be released in the second half of 2011.

Policy and Regulatory Recommendations

- City of Chino – Update the San Bernardino County Airport Land Use Compatibility Plan for Chino Airport
- City of Chino – Update General Plan to reflect recommended land use designations and street extensions.
- City of Ontario – Update Ontario Policy Plan to reflect recommended street extensions and land use changes (as Specific Plans are prepared).
- Cities of Chino and Ontario, San Bernardino County - - Develop a coordinated economic strategy for the Chino Airport area
- San Bernardino County Department of Airports – Develop design and site planning guidelines to provide consistent guidance for the character of future airport development
- San Bernardino County Department of Airports – Develop and implement an Airport Environmental Best Practices/Sustainability Guide at Chino Airport

The updated ALUCP should include the following airport compatibility guidance:

- Updated airport noise exposure contours and land use compatibility criteria applying within the noise contours.
- Updated airport vicinity safety areas and land use and performance standards to ensure the avoidance of land uses within airport safety areas that could lead to unacceptable risks for occupants of those land uses and occupants of aircraft overshooting or undershooting the runway, or making forced landings near the runway ends.

¹² San Bernardino County Airport Land Use Commission, *Comprehensive Land Use Plan, Chino Airport*. Prepared by Ray A. Vidal, Aviation Planning Consultant, November 1991. See Appendix B, Section B.3.1, for a discussion of the existing CLUP.

- Performance standards ensuring the avoidance of potential hazards to flight that could be caused by bird attractants, lights within extended airport approach areas that could be confused with navigational lighting, and sources of thermal plumes, glare, electromagnetic interference, smoke and vapor.
- Airspace protection criteria to ensure the avoidance of new objects penetrating critical airspace.
- Standards helping to ensure that developers comply with the requirements of 14 CFR Part 77, Subpart B, requiring that FAA be notified of proposed new construction or alterations to existing structures exceeding specified heights.

In the process of preparing an updated ALUCP, the City of Chino should ensure the full participation of potentially affected local property owners and local governments, including the San Bernardino County Department of Airports. An open consultation process will help to ensure that all viewpoints are taken into account, helping with the ultimate implementation of the ALUCP.

5.4.1.2 Chino General Plan Amendments

While most of the City of Chino General Plan remains valid under this Airport Smart Growth Plan, a few minor amendments to the General Plan are recommended. First, the Land Use Element references the Euclid Avenue Corridor as an area for future growth and higher intensity development.¹³ This plan recommends that the Euclid Avenue Corridor, as shown on the Future Growth Vision map, should be extended to include the Euclid/Merrill Avenue intersection, and the text be revised to reflect the influence of Chino Airport in the future development of this area.

Next, after approval of the updated Chino Airport Master Plan and the update of the ALUCP, the Airport Land Use Compatibility section of Chino General Plan Land Use element should be updated to reflect the most recent ALUCP requirements.¹⁴ Likewise, the Airport Operations section of the General Plan Safety Element¹⁵ should be updated to reflect the updated Airport Master Plan and ALUCP, while also taking into consideration the compatibility considerations set forth in the Airport Smart Growth Framework.

Recommended amendments to the Transportation Element of Chino's General Plan include an updated Roadway Classification map to reflect roadway extensions and realignments (see Exhibit 4), and a revision to the Transit section to reflect the proposed bus rapid transit corridor planned along Euclid Avenue.¹⁶

5.4.1.3 Ontario General Plan Amendments

Much of the area in Ontario surrounding Chino Airport falls within the New Model Colony area, where special processing requirements for Specific Plans determine future land use activities and

¹³ City of Chino, California, *General Plan*. See Land Use Element, Section B, page LU-3 for a discussion of the future growth vision.

¹⁴ City of Chino, California, *General Plan*. See Land Use Element, Section F, page LU-25 for a discussion of the airport land use compatibility plan.

¹⁵ City of Chino, California, *General Plan*. See Safety Element, Section E, page SAF-17 for a discussion of airport operations.

¹⁶ City of Chino, California, *General Plan*. See Transportation Element, Section A3, page TRA-13 for a discussion of public transit, and Section B, page TRA-3 for discussion about roadway classifications, standards, and improvements.

development patterns.¹⁷ As these Specific Plans are created, this plan recommends that the City of Ontario consider the land use recommendations in Section 5.1 in order to ensure the compatibility of future development with airport operations.

Additionally, it is recommended that the Functional Roadway Classification Plan within the Mobility Section of the City of Ontario's Policy Plan¹⁸ be updated to reflect the proposed roadway extensions and realignments recommended in Exhibit 4 so that the future roadway network in the New Model Colony area aligns with future Chino Airport roadways.

5.4.1.4 Joint Economic Development Strategy

For Chino Airport to fully emerge as a regional economic asset, economic activities at the Airport and in the environs should be carefully planned and thoughtfully integrated. A coordinated economic development strategy for the Chino Airport area that involves the Department of Airports, economic development organizations, and adjacent communities, including Chino and Ontario (and possibly the City of Eastvale and Riverside County), is recommended to help align potential plans for revenue-support activities at the Airport with other community development plans and opportunities. For example, new employment uses on Airport grounds would likely increase the potential for complementary commercial and retail services on nearby parcels in Chino or Ontario. Coordination among the various entities will not only help improve opportunities for synergistic activities on and off-airport, but may also help identify potential incompatibilities or duplication in efforts or activities.

The joint economic development strategy should address topics such as:

- Existing assets and resources to leverage
- Targeted industries and employers
- Commercial, service, infrastructure, and other needs
- Marketing and branding coordination
- Roles of each agency/organization

5.4.1.5 Airport Design and Site Planning Guidelines

Development of consistent airport design and site planning guidelines, which could be facilitated through a design manual and formal design criteria, is recommended in order to provide consistent guidance for the quality and character of buildings and materials, placement of buildings along the edges of the Airport, and other elements such as landscaping, pedestrian walkways, and parking areas. The guidelines should align with the updated Airport Master Plan and should be developed for use by the San Bernardino County Department of Airports to guide all future Airport development (including aviation and non-aviation uses), and may also be useful to the Cities of Chino and Ontario in planning for development adjacent to the Airport.

5.4.1.6 Airport Environmental Best Management Practices

To a large degree, the Cities of Chino and Ontario are already making great strides in enhancing environmental stewardship and abiding by environmental best practices – efforts that should continue to be integrated into all City functions and operations. This Smart Growth Plan recommends that the San Bernardino County Department of Airports also continue to integrate environmental stewardship and conservation into Airport operations, to the extent feasible, by following the Airport

¹⁷ City of Ontario, California, *Policy Plan*. See Generalized and Growth Areas map for New Model Colony area map. New Model Colony information available at: <http://www.ci.ontario.ca.us/index.cfm/2846>. Accessed June 6, 2011.

¹⁸ City of Ontario, California, *Policy Plan*. See Functional Roadway Classification Plan map in the Mobility, M Roadway System section.

Environmental Best Management Practices. The County Department of Airports should consider establishing an Environmental Best Practices and Sustainability Guide, similar to the manual developed by the City of Chicago, but scaled to the special needs of a Southern California general aviation airport. As environmental best practices are integrated at Chino Airport and in the environs, it will be important to abide by relevant FAA guidelines relating to the avoidance of hazardous wildlife attractants and the appropriate siting and design of any on-airport energy generation facilities.

5.4.2 Administrative Procedures

In addition to regulatory and policy updates, several revisions to administrative procedures are recommended in order to implement the Airport Smart Growth Plan. These administrative procedures are summarized below.

5.4.2.1 Chino Airport Vicinity Planning Coordination Committee

In order to improve the possibilities for long-term success at Chino Airport and in the Airport environs, this plan recommends that the cities of Chino and Ontario and the San Bernardino County Department of Airports develop a structure or mechanism to improve communication and ensure coordination. Establishment of a Chino Airport Vicinity Planning Coordination Committee or other similar group would provide the necessary structure to address in a coordinated rather than fragmented manner the issues and opportunities that emerge in the Airport environs.

The Coordination Committee should meet periodically to review and discuss major projects and regional issues/opportunities (such as major development projects, economic development activities, alignment of long-range plans, and infrastructure improvements). The Coordination Committee should also oversee the establishment of a structure (formal or informal) that ensures regular communication among community staff planners and Airport department staff in the review of development proposals in the environs and on the Airport. In the initial stage, the County Department of Airports, perhaps assisted by SCAG, would be an appropriate convener of the coordination committee.

Administrative Procedure Recommendations

- Establish an Airport Vicinity Planning Coordination Committee to enhance coordination and communication between communities and Chino Airport
- Outreach to involve other nearby communities in coordination activities and the Chino Airport Smart Growth Plan.

5.4.2.2 Outreach to Other Jurisdictions

Future collaboration and participation on the Chino Airport Vicinity Planning Coordination Committee should not be limited to the Cities of Chino and Ontario and San Bernardino Department of Airports, but should also involve other communities in the Airport environs, including Eastvale and Chino Hills, as well as San Bernardino and Riverside Counties. It is recommended that the Cities of Chino and Ontario and the County Department of Airports reach out to other neighboring communities, to understand their perspectives on airport-related issues and opportunities, to improve chances for mutually-beneficial outcomes, and to reduce potential conflicts before they occur.

VI. Conclusion

The Chino Airport Smart Growth Plan represents an initial effort to apply an Airport Smart Growth Planning Framework to the evaluation and refinement of land use and transportation plans in the environs of an airport. Recognizing that this is a demonstration project, the SCAG staff and Aviation Technical Advisory Committee should publicize and explain the project to the operators of other airports and to the staff and elected officials of airport host communities within the SCAG region. SCAG should also follow-up with City officials in Chino and Ontario and with the County Department of Airports to learn about the successes and challenges they are facing as they attempt to implement the recommendations of the Chino Airport Smart Growth Plan.

SCAG should also consider refining its Compass Blueprint planning principles and the SCAG Growth Vision for the six-county region to incorporate the Airport Smart Growth Framework, encouraging its application to other airports in the region. SCAG should also work with the California Department of Transportation to incorporate the Framework into the California Interregional Blueprint, a planning project aimed at linking statewide transportation goals with regional land use and transportation goals to produce a unified transportation strategy.

If the Airport Smart Growth Planning Framework is found to be helpful in guiding appropriate development in the Chino Airport environs, other airports and communities within the SCAG region may wish to undertake their own planning efforts. One of the challenges confronting local governments and airport operators in planning for their interrelated future is the need for coordination across jurisdictions. Most airport influence areas cross municipal boundaries, and many airports are operated by entities lacking land use planning and regulatory authority in their environs. Successful airport environs planning often depends on coordination among multiple jurisdictions. Regional planning agencies, such as SCAG, are well-suited to facilitate this coordination. Their lack of direct land use regulatory authority positions them as neutral stakeholders, and their portfolio of regional planning and coordination responsibilities gives them an important perspective on the linkages of airports to the larger transportation and economic development issues in the region.



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